

CEQA STORM WATER MANAGEMENT PLAN

Lang Tentative Parcel Map 20975 RPL2

ER # 0508028

**Prepared By:
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**For:
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**SDC DPLU RCVD 12-13-07
TPM 20975 RPL2**

**CEQA Storm Water Management Plan
For Priority Projects
(Major SWMP)**

| | |
|--|--------------------------------------|
| Project Name: | Lang TPM 20975 |
| Permit Number (Land Development Projects): | |
| Work Authorization Number (CIP): | |
| Applicant: | Anthony Lang |
| Applicant's Address: | P.O. Box 262014, San Diego, CA 92126 |
| Plan Prepare By (<i>Leave blank if same as applicant</i>): | Nolte Associates |
| Date: | March 5, 2007 |
| Revision Date (If applicable): | |

The County of San Diego Watershed Protection, Storm Water Management, and Discharge Control Ordinance (WPO) (Ordinance No. 9424) requires all applications for a permit or approval associated with a Land Disturbance Activity must be accompanied by a Storm Water Management Plan (SWMP) (section 67.804.f). The purpose of the SWMP is to describe how the project will minimize the short and long-term impacts on receiving water quality. Projects that meet the criteria for a priority project are required to prepare a Major SWMP.

Since the SWMP is a living document, revisions may be necessary during various stages of approval by the County. Please provide the approval information requested below.

| Project Stages | Does the SWMP need revisions? | | If YES, Provide Revision Date |
|--|-------------------------------|----|-------------------------------|
| | YES | NO | |
| 2 nd Plan Check-Tentative Map Stage | X | | August 2006 (?) |
| | | | |
| | | | |

Instructions for a Major SWMP can be downloaded at <http://www.co.san-diego.ca.us/dpw/stormwater/susmp.html>.

Completion of the following checklist and attachments will fulfill the requirements of a Major SWMP for the project listed above.

PROJECT DESCRIPTION

Please provide a brief description of the project in the following box. For example:

The 50-acre RC Ranch project is located on the south side of San Miguel Road in the County of San Diego (See Attachment 1). The project is approximately 1.0 mile east of the intersection of San Miguel Avenue and San Miguel Road and 1 mile south of the Sweetwater Reservoir. This project will consist of a planned residential community comprising of 45 single-family homes 72 and multi-unit dwellings.

| |
|--|
| Tentative Parcel Map 20975 is located at the southwest corner of the intersection of |
|--|

Artesian Road and Artesian Trail in the County of San Diego. The site proposes four detached single family homes. The study area is an undeveloped 10.22 acre parcel covered with California adolphia, coastal sage, and grasslands. It is located in the Santa Fe Valley area, which is west of Black Mountain Road, east of Del Dios Highway, and south of Artesian Road. The project is within the unincorporated County, and San Dieguito Watershed. Runoffs from the site will discharge to three natural drainage channels. Those three channels eventually join each other to form a single watercourse, and drain southwesterly into the San Dieguito River and thence to the Pacific Ocean. *This Stormwater Management Plan has been prepared during the Tentative Map Stage and addresses water quality concerns at a conceptual level according to the preliminary grading plan. This Stormwater Management Plan will be revised to include further details on site, source, and treatment control BMPs for the site during the design stage of this project.*

PRIORITY PROJECT DETERMINATION

Please check the box that best describes the project. Does the project meet one of the following criteria?

| PRIORITY PROJECT | YES | NO |
|--|------------|-----------|
| Redevelopment within the County Urban Area that creates or adds at least 5,000 net square feet of additional impervious surface area | X | |
| Residential development of more than 10 units | | X |
| Commercial developments with a land area for development of greater than 100,000 square feet | | X |
| Automotive repair shops | | X |
| Restaurants, where the land area for development is greater than 5,000 square feet | | X |
| Hillside development, in an area with known erosive soil conditions, where there will be grading on any natural slope that is twenty-five percent or greater, if the development creates 5,000 square feet or more of impervious surface | | X |
| Environmentally Sensitive Areas: All development and redevelopment located within or directly adjacent to or discharging directly to an environmentally sensitive area (where discharges from the development or redevelopment will enter receiving waters within the environmentally sensitive area), which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10% or more of its naturally occurring condition. | X | |
| Parking Lots 5,000 square feet or more or with 15 parking spaces or more and potentially exposed to urban runoff | | X |
| Streets, roads, highways, and freeways which would create a new paved surface that is 5,000 square feet or greater | X | |

Limited Exclusion: Trenching and resurfacing work associated with utility projects are not considered priority projects. Parking lots, buildings and other structures associated with utility projects are subject to SUSMP requirements if one or more of the criteria above are met.

If you answered **NO** to all the questions, then **STOP**. Please complete a Minor SWMP for your project.

If you answered **YES** to any of the questions, please continue.

The following questions provide a guide to collecting information relevant to project stormwater quality issues. Please provide a description of the findings in text box below.

| | QUESTIONS | COMPLETED | NA |
|-----|---|-----------|----|
| 1. | Describe the topography of the project area. | X | |
| 2. | Describe the local land use within the project area and adjacent areas. | X | |
| 3. | Evaluate the presence of dry weather flow. | | X |
| 4. | Determine the receiving waters that may be affected by the project throughout the project life cycle (i.e., construction, maintenance and operation). | X | |
| 5. | For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern. | | X |
| 6. | Determine if there are any High Risk Areas (municipal or domestic water supply reservoirs or groundwater percolation facilities) within the project limits. | | X |
| 7. | Determine the Regional Board special requirements, including TMDLs, effluent limits, etc. | | X |
| 8. | Determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves. | | X |
| 9. | If considering Treatment BMPs, determine the soil classification, permeability, erodibility, and depth to groundwater. | | X |
| 10. | Determine contaminated or hazardous soils within the project area. | | X |

Please provide a description of the findings in the following box. For example:

The project is located in the San Diego Hydrologic unit. The area is characterized by rolling grassy hills and shrubs. Runoff from the project drains into a MS4 that eventually drains to Los Coches Creek. Within the project limit there are no 303(d) impaired receiving water and no Regional Board special requirements.

The project is located in San Dieguito Hydrologic Unit. The undeveloped site is a 10.22 acre located on a hillside that is covered with grass and shrubs. In general, drainage across the site sheet flows from northwest to southwest. There is a natural drainage channel located on the eastern half of the property that collects both on-site and off-site runoff from the east and discharges near the middle of the southern property line. Lusardi Creek is located approximately 0.25 mile downstream of the site. Within the project limit there are no 303(d) impaired receiving water and no Regional Board special requirements. *This Stormwater Management Plan (SWMP) has been prepared for the Tentative Map Stage for the purpose of land division only and identifies water quality management measures in "concept" only. This SWMP will be revised during the design stage of the project to incorporate any required site, source, and treatment control BMPs into the final grading and design plans.*

Complete the checklist below to determine if Treatment Best Management Practices (BMPs) are required for the project.

| No. | CRITERIA | YES | NO | INFORMATION |
|-----|---|-----|----|---|
| 1. | Is this an emergency project | | X | If YES, go to 6. If NO, continue to 2. |
| 2. | Have TMDLs been established for surface waters within the project limit? | | X | If YES, go to 5. If NO, continue to 3. |
| 3. | Will the project directly discharge to a 303(d) impaired receiving water body? | | X | If YES, go to 5. If NO, continue to 4. |
| 4. | Is this project within the urban and environmentally sensitive areas as defined on the maps in Appendix B of the <i>County of San Diego Standard Urban Storm Water Mitigation Plan for Land Development and Public Improvement Projects</i> ? | X | | If YES, continue to 5. If NO, go to 6. |
| 5. | Consider approved Treatment BMPs for the project. | X | | If YES, go to 7. |
| 6. | Project is not required to consider Treatment BMPs | | | Document for Project Files by referencing this checklist. |
| 7. | End | | | |

Now that the need for a treatment BMPs has been determined, other information is needed to complete the SWMP.

WATERSHED

Please check the watershed(s) for the project.

- | | | | |
|--|--|---------------------------------------|---|
| <input type="checkbox"/> San Juan | <input type="checkbox"/> Santa Margarita | <input type="checkbox"/> San Luis Rey | <input type="checkbox"/> Carlsbad |
| <input checked="" type="checkbox"/> San Dieguito | <input type="checkbox"/> Penasquitos | <input type="checkbox"/> San Diego | <input type="checkbox"/> Pueblo San Diego |
| <input type="checkbox"/> Sweetwater | <input type="checkbox"/> Otay | <input type="checkbox"/> Tijuana | |

Please provide the hydrologic sub-area and number(s)

| Number | Name |
|--------|-----------------------------|
| 905.12 | La Jolla Hydrologic Subarea |
| | |

Please provide the beneficial uses for Inland Surface Waters and Ground Waters. Beneficial Uses can be obtained from the Water Quality Control Plan For The San Diego Basin, which is available at the Regional Board office or at <http://www.swrcb.ca.gov/rwqcb9/programs/basinplan.html>.

| SURFACE WATERS | Hydrologic Unit Basin Number | MUN | AGR | IND | PROC | GWR | FRESH | POW | REC1 | REC2 | BIOL | WARM | COLD | WILD | RARE | SPWN |
|------------------------------|---------------------------------|-----|-----|-----|------|-----|-------|-----|------|------|------|------|------|------|------|------|
| | | | | | | | | | | | | | | | | |
| Inland Surface Waters | | | | | | | | | | | | | | | | |
| Lusardi Creek | 905.12 | * | 0 | 0 | | | | | X | X | | X | | X | | |
| Ground Waters | | | | | | | | | | | | | | | | |
| Solana Beach HA | 905.12 | X | X | X | | | | | | | | | | | | |

* **Excepted from Municipal**

X Existing Beneficial Use

0 Potential Beneficial Use

POLLUTANTS OF CONCERN

Pollutants of concern from this project include sediments, nutrients, trash & debris, oxygen demanding substances, oil & grease, bacteria and viruses, and pesticides. This was determined from Table 1 below for Pollutants Generated by Detached Residential Development Priority Projects.

Table 1. Anticipated and Potential Pollutants Generated by Land Use Type

| Priority Project Categories | General Pollutant Categories | | | | | | | | |
|---|-------------------------------------|------------------|--------------|---------------------|----------------|-----------------------------|------------------|--------------------|------------------|
| | Sediments | Nutrients | Heavy Metals | Organic Compounds | Trash & Debris | Oxygen Demanding Substances | Oil & Grease | Bacteria & Viruses | Pesticides |
| Detached Residential Development | X | X | | | X | X | X | X | X |
| Attached Residential Development | X | X | | | X | P ⁽¹⁾ | P ⁽²⁾ | P | X |
| Commercial Development >100,000 ft ² | P ⁽¹⁾ | P ⁽¹⁾ | | P ⁽²⁾ | X | P ⁽⁵⁾ | X | P ⁽³⁾ | P ⁽⁵⁾ |
| Automotive Repair Shops | | | X | X ⁽⁴⁾⁽⁵⁾ | X | | X | | |
| Restaurants | | | | | X | X | X | X | |
| Hillside Development >5,000 ft ² | X | X | | | X | X | X | | X |
| Parking Lots | P ⁽¹⁾ | P ⁽¹⁾ | X | | X | P ⁽¹⁾ | X | | P ⁽¹⁾ |
| Streets, Highways & Freeways | X | P ⁽¹⁾ | X | X ⁽⁴⁾ | X | P ⁽⁵⁾ | X | | |

| Priority Project Categories | General Pollutant Categories | | | | | | | | |
|---|------------------------------|-----------|--------------|-------------------|----------------|-----------------------------|--------------|--------------------|------------|
| | Sediments | Nutrients | Heavy Metals | Organic Compounds | Trash & Debris | Oxygen Demanding Substances | Oil & Grease | Bacteria & Viruses | Pesticides |
| X = anticipated P = potential (1) A potential pollutant if landscaping exists on-site. (2) A potential pollutant if the project includes uncovered parking areas. (3) A potential pollutant if land use involves food or animal waste products. (4) Including petroleum hydrocarbons. (5) Including solvents. | | | | | | | | | |

CONSTRUCTION BMPs

Please check the construction BMPs that may be used. The BMPs selected are those that will be implemented during construction of the project. The applicant is responsible for the placement and maintenance of the BMPs selected.

- Silt Fence
- Fiber Rolls
- Street Sweeping and Vacuuming
- Storm Drain Inlet Protection
- Stockpile Management
- Solid Waste Management
- Stabilized Construction Entrance/Exit
- Dewatering Operations
- Vehicle and Equipment Maintenance
- Any minor slopes created incidental to construction and not subject to a major or minor grading permit shall be protected by covering with plastic or tarp prior to a rain event, and shall have vegetative cover reestablished within 180 days of completion of the slope and prior to final building approval.
- Desilting Basin
- Gravel Bag Berm
- Sandbag Barrier
- Material Delivery and Storage
- Spill Prevention and Control
- Concrete Waste Management
- Water Conservation Practices
- Paving and Grinding Operations

SITE DESIGN

To minimize stormwater impacts, site design measures must be addressed. The following checklist provides options for avoiding or reducing potential impacts during project planning. If YES is checked, it is assumed that the measure was used for this project. If NO is checked, please provide a brief explanation why the option was not selected in the text box below.

| | OPTIONS | YES | NO | N/A |
|----|---|-----|----|-----|
| 1. | Can the project be relocated or realigned to avoid/reduce impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions? | | | X |
| 2. | Can the project be designed to minimize impervious footprint? | X | | |

| | | | | |
|------|---|---|--|---|
| 3. | Conserve natural areas where feasible? | X | | |
| 4. | Where landscape is proposed, can rooftops, impervious sidewalks, walkways, trails and patios be drained into adjacent landscaping? | X | | |
| 5. | For roadway projects, can structures and bridges be designed or located to reduce work in live streams and minimize construction impacts? | | | X |
| 6. | Can any of the following methods be utilized to minimize erosion from slopes: | | | |
| 6.a. | Disturbing existing slopes only when necessary? | X | | |
| 6.b. | Minimize cut and fill areas to reduce slope lengths? | X | | |
| 6.c. | Incorporating retaining walls to reduce steepness of slopes or to shorten slopes? | X | | |
| 6.d. | Providing benches or terraces on high cut and fill slopes to reduce concentration of flows? | X | | |
| 6.e. | Rounding and shaping slopes to reduce concentrated flow? | X | | |
| 6.f. | Collecting concentrated flows in stabilized drains and channels? | X | | |

Please provide a brief explanation for each option that was checked NO in the following box.

N/A

SOURCE CONTROL

Please complete the following checklist for Source Control BMPs. If the BMP is not applicable for this project, then check N/A only at the main category.

| BMP | | YES | NO | N/A |
|------|--|-----|----|-----|
| 1. | Provide Storm Drain System Stenciling and Signage | | | X |
| 1.a. | All storm drain inlets and catch basins within the project area shall have a stencil or tile placed with prohibitive language (such as: "NO DUMPING – DRAINS TO _____") and/or graphical icons to discourage illegal dumping. | | | |
| 1.b. | Signs and prohibitive language and/or graphical icons, which prohibit illegal dumping, must be posted at public access points along channels and creeks within the project area. | | | |
| 2. | Design Outdoors Material Storage Areas to Reduce Pollution Introduction | | | |
| 2.a. | This is a detached single-family residential project. Therefore, personal storage areas are exempt from this requirement. | X | | |
| 2.b. | Hazardous materials with the potential to contaminate urban runoff shall either be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the storm water conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs. | | | |
| 2.c. | The storage area shall be paved and sufficiently impervious to contain leaks and spills. | | | |
| 2.d. | The storage area shall have a roof or awning to minimize direct precipitation within the secondary containment area. | | | |

| BMP | | YES | NO | N/A |
|------|--|-----|----|-----|
| 3. | Design Trash Storage Areas to Reduce Pollution Introduction | | | |
| 3.a. | Paved with an impervious surface, designed not to allow run-on from adjoining areas, screened or walled to prevent off-site transport of trash; or, | | | X |
| 3.b. | Provide attached lids on all trash containers that exclude rain, or roof or awning to minimize direct precipitation. | X | | |
| 4. | Use Efficient Irrigation Systems & Landscape Design | | | |
| | The following methods to reduce excessive irrigation runoff shall be considered, and incorporated and implemented where determined applicable and feasible. | | | |
| 4.a. | Employing rain shutoff devices to prevent irrigation after precipitation. | X | | |
| 4.b. | Designing irrigation systems to each landscape area's specific water requirements. | X | | |
| 4.c. | Using flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines. | X | | |
| 4.d. | Employing other comparable, equally effective, methods to reduce irrigation water runoff. | X | | |
| 5. | Private Roads | | | |
| | The design of private roadway drainage shall use at least one of the following | | | |
| 5.a. | Rural swale system: street sheet flows to vegetated swale or gravel shoulder, curbs at street corners, culverts under driveways and street crossings. | X | | |
| 5.b. | Urban curb/swale system: street slopes to curb, periodic swale inlets drain to vegetated swale/biofilter. | | | |
| 5.c. | Dual drainage system: First flush captured in street catch basins and discharged to adjacent vegetated swale or gravel shoulder, high flows connect directly to storm water conveyance system. | | | |
| 5.d. | Other methods that are comparable and equally effective within the project. | | | |
| 6. | Residential Driveways & Guest Parking | | | |
| | The design of driveways and private residential parking areas shall use one at least of the following features. | | | |
| 6.a. | Design driveways with shared access, flared (single lane at street) or wheelstrips (paving only under tires); or, drain into landscaping prior to discharging to the storm water conveyance system. | X | | |
| 6.b. | Uncovered temporary or guest parking on private residential lots may be: paved with a permeable surface; or, designed to drain into landscaping prior to discharging to the storm water conveyance system. | | | |
| 6.c. | Other features which are comparable and equally effective. | | | |
| 7. | Dock Areas | | | X |
| | Loading/unloading dock areas shall include the following. | | | |
| 7.a. | Cover loading dock areas, or design drainage to preclude urban run-on and runoff. | | | |
| 7.b. | Direct connections to storm drains from depressed loading docks (truck wells) are prohibited. | | | |
| 7.c. | Other features which are comparable and equally effective. | | | |
| 8. | Maintenance Bays | | | X |
| | Maintenance bays shall include the following. | | | |

| BMP | | YES | NO | N/A |
|------------|--|------------|-----------|------------|
| 8.a. | Repair/maintenance bays shall be indoors; or, designed to preclude urban run-on and runoff. | | | |
| 8.b. | Design a repair/maintenance bay drainage system to capture all wash water, leaks and spills. Connect drains to a sump for collection and disposal. Direct connection of the repair/maintenance bays to the storm drain system is prohibited. If required by local jurisdiction, obtain an Industrial Waste Discharge Permit. | | | |
| 8.c. | Other features which are comparable and equally effective. | | | |
| 9. | Vehicle Wash Areas | | | X |
| | Priority projects that include areas for washing/steam cleaning of vehicles shall use the following. | | | |
| 9.a. | Self-contained; or covered with a roof or overhang. | | | |
| 9.b. | Equipped with a clarifier or other pretreatment facility. | | | |
| 9.c. | Properly connected to a sanitary sewer. | | | |
| 9.d. | Other features which are comparable and equally effective. | | | |
| 10. | Outdoor Processing Areas | | | X |
| | Outdoor process equipment operations, such as rock grinding or crushing, painting or coating, grinding or sanding, degreasing or parts cleaning, waste piles, and wastewater and solid waste treatment and disposal, and other operations determined to be a potential threat to water quality by the County shall adhere to the following requirements. | | | |
| 10.a. | Cover or enclose areas that would be the most significant source of pollutants; or, slope the area toward a dead-end sump; or, discharge to the sanitary sewer system following appropriate treatment in accordance with conditions established by the applicable sewer agency. | | | |
| 10.b. | Grade or berm area to prevent run-on from surrounding areas. | | | |
| 10.c. | Installation of storm drains in areas of equipment repair is prohibited. | | | |
| 10.d. | Other features which are comparable or equally effective. | | | |
| 11. | Equipment Wash Areas | | | X |
| | Outdoor equipment/accessory washing and steam cleaning activities shall be. | | | |
| 11.a. | Be self-contained; or covered with a roof or overhang. | | | |
| 11.b. | Be equipped with a clarifier, grease trap or other pretreatment facility, as appropriate | | | |
| 11.c. | Be properly connected to a sanitary sewer. | | | |
| 11.d. | Other features which are comparable or equally effective. | | | |
| 12. | Parking Areas | | | X |
| | The following design concepts shall be considered, and incorporated and implemented where determined applicable and feasible by the County. | | | |
| 12.a. | Where landscaping is proposed in parking areas, incorporate landscape areas into the drainage design. | | | |
| 12.b. | Overflow parking (parking stalls provided in excess of the County's minimum parking requirements) may be constructed with permeable paving. | | | |
| 12.c. | Other design concepts that are comparable and equally effective. | | | |
| 13. | Fueling Area | | | X |
| | Non-retail fuel dispensing areas shall contain the following. | | | |

| BMP | | YES | NO | N/A |
|-------|--|-----|----|-----|
| 13.a. | Overhanging roof structure or canopy. The cover's minimum dimensions must be equal to or greater than the area within the grade break. The cover must not drain onto the fuel dispensing area and the downspouts must be routed to prevent drainage across the fueling area. The fueling area shall drain to the project's treatment control BMP(s) prior to discharging to the storm water conveyance system. | | | |
| 13.b. | Paved with Portland cement concrete (or equivalent smooth impervious surface). The use of asphalt concrete shall be prohibited. | | | |
| 13.c. | Have an appropriate slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of urban runoff. | | | |
| 13.d. | At a minimum, the concrete fuel dispensing area must extend 6.5 feet (2.0 meters) from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 foot (0.3 meter), whichever is less. | | | |

Please list other project specific Source Control BMPs in the following box. Write N/A if there are none.

Energy Dissipators (riprap) will be installed at the downstream end of all brow ditches to prevent erosion on slopes. The necessity of vegetated swales/biofilters will be evaluated during later stages of the development of this project and may or may not be employed. They are not been shown on the Post Construction BMP Map (Attachment B) that accompanies this report.

TREATMENT CONTROL

This project is a low-density residential development that proposes little increase in overall impervious area (approximately 10 percent). At this stage of the project (the Tentative Map Stage), only preliminary drainage patterns and some preliminary slopes and pad elevations have been determined. Brow ditches have been incorporated into the preliminary site design to divert off-site drainage away from the pads. There is no proposed storm drain system for the site. Treatment control BMPs that will be incorporated into the final design will include:

- 1) Vegetative swales (bioswales/biofilters) along the private street and around the four individual pads
- 2) Draining rooftops through landscaping prior to discharging off-site
- 3) Using natural vegetation on slopes to additionally filter runoff from the pads prior to discharging off site.

In general, biofilters provide low removal efficiency for nutrients, trash and debris, and oxygen demanding substances, medium removal efficiency for sediment, heavy metals, and oil & grease, and an unknown efficiency for bacteria, pesticides, and organic compounds according to Table 2 below.

Table 2. Treatment Control BMP Selection Matrix

| Pollutant of Concern | Treatment Control BMP Categories | | | | | | |
|-----------------------------|----------------------------------|------------------|------------------------------------|-----------------------|------------------|------------|---|
| | Biofilters | Detention Basins | Infiltration Basins ⁽²⁾ | Wet Ponds or Wetlands | Drainage Inserts | Filtration | Hydrodynamic Separator Systems ⁽³⁾ |
| Sediment | M | H | H | H | L | H | M |
| Nutrients | L | M | M | M | L | M | L |
| Heavy Metals | M | M | M | H | L | H | L |
| Organic Compounds | U | U | U | M | L | M | L |
| Trash & Debris | L | H | U | H | M | H | M |
| Oxygen Demanding Substances | L | M | M | M | L | M | L |
| Bacteria | U | U | H | H | L | M | L |
| Oil & Grease | M | M | U | U | L | H | L |
| Pesticides | U | U | U | L | L | U | L |

(1) Copermitees are encouraged to periodically assess the performance characteristics of many of these BMPs to update this table.
(2) Including trenches and porous pavement.
(3) Also known as hydrodynamic devices and baffle boxes.

L: Low removal efficiency);
M: Medium removal efficiency);
H: High removal efficiency);
U: Unknown removal efficiency

Sources: *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* (1993), *National Stormwater Best Management Practices Database* (2001), *Guide for BMP Selection in Urban Developed Areas* (2001), and *Caltrans New Technology Report* (2001).

A Treatment BMP must address runoff from developed areas. Please provide the post-construction water quality values for the project. Label outfalls on the BMP map. Q_{WQ} is dependent on the type of treatment BMP selected for the project.

A preliminary (CEQA) level hydrology study has been prepared to analyze the existing and proposed conditions for the two watersheds that lie within the project area. The hydrology study analyzes both onsite and offsite areas and compares the overall existing and proposed conditions. The CEQA hydrology study does not analyze Q_{100} or Q_{WQ} for each proposed outfall based on developed conditions. This will be analyzed in the design stage and a new hydrology study will be submitted at that time. Subsequently, a revised SWMP will be submitted to the County at that time as well.

A preliminary water quality flow (Q_{WQ}) can be calculated for the four individual pads and the street runoff based on knowing the project site area and the proposed amount of impervious cover. Mannings equation was used to calculate the actual capacity of the swales. The table below summarizes the water quality treatment flow rates and the calculated swale capacities.

Table 3: Water Quality Treatment Flow Rates and Swale Capacities

| | Trib. Area (ft ²) | Q _{WQ} (cfs) | Q _{SWALE} (cfs) |
|--------|-------------------------------|-----------------------|--------------------------|
| Pad 1 | 0.35 | 0.03 | 0.96 |
| Pad 2 | 0.35 | 0.03 | 0.96 |
| Pad 3 | 0.32 | 0.03 | 0.96 |
| Pad 4 | 0.39 | 0.04 | 0.96 |
| Street | 0.48 | 0.09 | 4.29 |
| Total | 1.89 | 0.22 | |

Q_{WQ} = ciA

Where C = 0.46 for individual pads and 0.9 for paved street

I = 0.2 inches/hr per City of San Diego's LEAD method for Flow-Based BMPs

A = 1.89 acres (project area developed)

Q_{SWALE} = 1.49/n*AR^{2/3}*S^{1/2} (Manning's Equation)

Where n = 0.2 (mowed grass 4"-6" high)

S = 0.005 (minimum slope on bioswales around the pad); S = 0.10 at swale discharging at end of street.

During the design stage of the project, the grass swales (biofilters) will be designed to treat 0.22 cfs from the site. All required calculations to show this has been done will be provided and this SWMP will be updated to reflect this information.

Please check the box(s) that best describes the Treatment BMP(s) selected for this project.

Biofilters

Grass swale

Grass strip

Wetland vegetation swale

Bioretention

Detention Basins

Extended/dry detention basin with grass lining

Extended/dry detention basin with impervious lining

Infiltration Basins

Infiltration basin

Infiltration trench

Porous asphalt

Porous concrete

Porous modular concrete block

Wet Ponds or Wetlands

Wet pond/basin (permanent pool)

Constructed wetland

Drainage Inserts (See note below)

Oil/Water separator

Catch basin insert

- Storm drain inserts
- Catch basin screens

Filtration

- Media filtration
- Sand filtration

Hydrodynamic Separator Systems

- Swirl Concentrator
- Cyclone Separator
- Baffle Separator
- Gross Solids Removal Device
- Linear Radial Device

| | | |
|---|------------------|------------------|
| Include Treatment Datasheet as Attachment E. The datasheet should include the following: | COMPLETED | NO |
| 1. Description of how treatment BMP was designed. Provide a description for each type of treatment BMP. | | X ⁽¹⁾ |
| 2. Engineering calculations for the BMP(s) | | X ⁽¹⁾ |

(1) BMP descriptions and engineering calculations will be completed during the design stage of the project as part of the grading plan set.

Please describe why the selected treatment BMP(s) was selected for this project. For projects utilizing a low performing BMP, please provide a detailed explanation.

This project is a detached residential project with only 4 proposed units. The increase in overall imperviousness is minor (less than 10%) and there is no proposed storm drain system. The intent of using natural swales to convey the small amount of runoff from the private driveway and rooftop drains will adequately provide water quality treatment.

MAINTENANCE

Please check the box that best describes the maintenance mechanism(s) for this project.

| CATEGORY | SELECTED | |
|----------|----------|----|
| | YES | NO |
| First | X | |
| Second | | |
| Third | | |
| Fourth | | |

The biofilters within the project site will require a first category maintenance mechanism. The maintenance requirement for the biofilters will be included in a Notice to Purchasers in accordance with the County requirements. Maintenance operations associated with the biofilters include mowing and removing sediment and debris. These operations and any long-term funding will be the responsibility of the property owner.

ATTACHMENTS

Please include the following attachments.

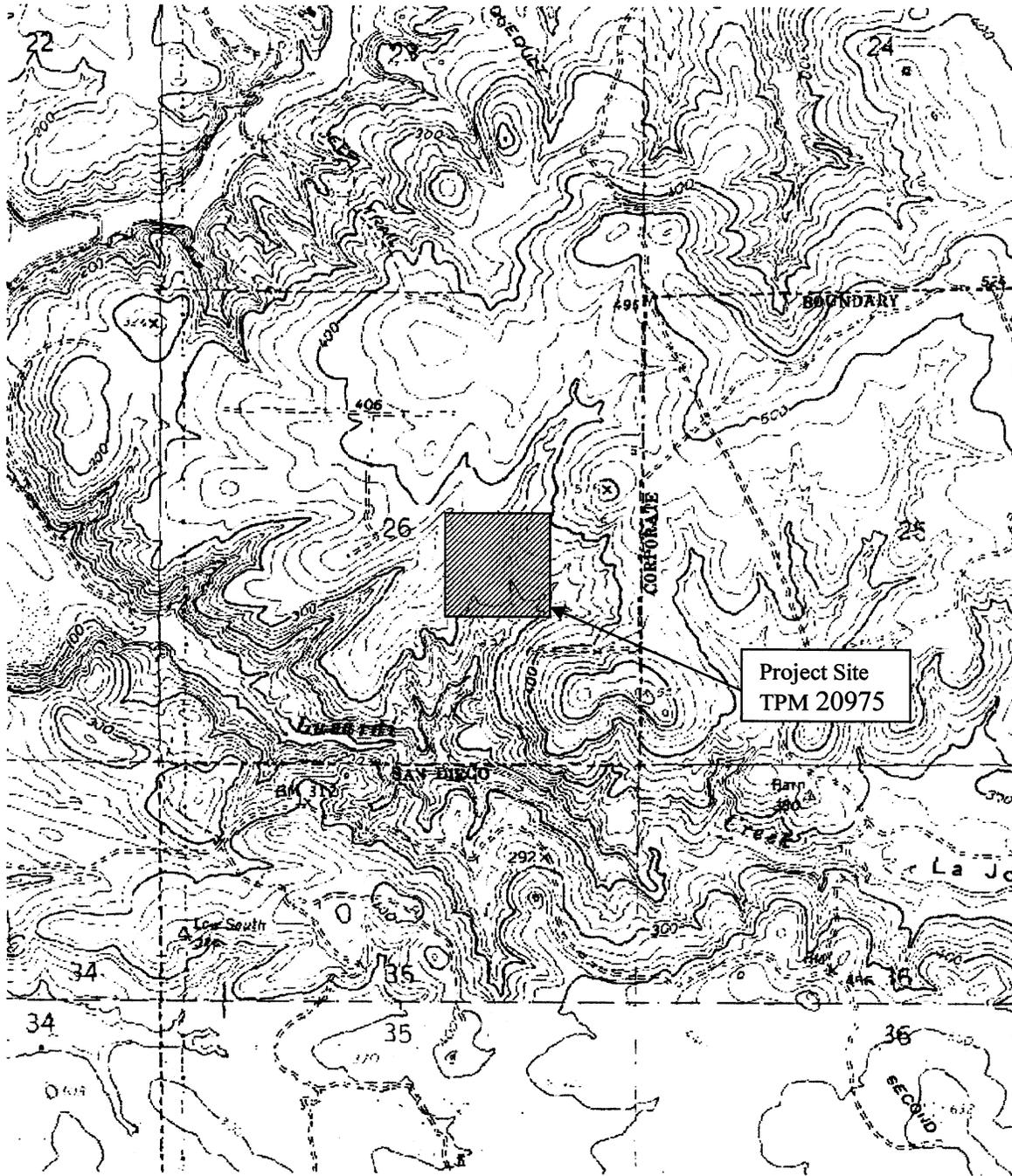
| ATTACHMENT | | COMPLETED | N/A |
|------------|--|-----------|-----|
| A | Project Location Map | X | |
| B | Site Map | | X |
| C | Relevant Monitoring Data | | X |
| D | Treatment BMP Location Map | X | |
| E | Treatment BMP Datasheets | | X |
| F | Operation and Maintenance Program for Treatment BMPs | X | X |
| G | Fiscal Resources | | X |
| H | Certification Sheet | X | |
| I | Addendum | | X |

Note: Attachments A and B may be combined.

ATTACHMENT A

VICINITY MAP

VICINITY MAP
(A.P.N. 267-142-09)



Scale = 1:50,000

↑
North

ATTACHMENT D
TREATMENT BMP LOCATION MAP

ATTACHMENT F

OPERATION AND MAINTENANCE PROGRAM FOR TREATMENT BMPs

ATTACHMENT F

OPERATION AND MAINTENANCE PROGRAM FOR TREATMENT BMPs

| Biofilters (Bioswales) | | | | | |
|---|---|-------------------|--|---|--------------------------------------|
| Preventative Maintenance and Routine Inspection | | | | | |
| Routine Action | Maintenance Indicator | Field Measurement | Measurement Frequency | Maintenance Activity | Site-Specific Requirements |
| Height of vegetation/mowing | Average vegetation height exceeds 12 inches, emergence of trees or woody vegetation | Visual Inspection | Once during wet season, once during dry season (depending on height of vegetation) | Cut vegetation to an average height of 6 inches | Remove any trees or woody vegetation |
| Inspect for debris accumulation | Debris or litter present | Visual Inspection | As needed | Remove litter and debris | |
| Assess Vegetative Cover | | | | | |
| Inspect for Accumulated Sediment | Sediment at or near vegetation height | Visual Inspection | Annually | Remove Sediment and dispose of properly | |

| Riprap and Drainage Course | | | | | |
|---|-----------------------------------|-------------------|--|---------------------------|----------------------------|
| Preventative Maintenance and Routine Inspection | | | | | |
| Routine Action | Maintenance Indicator | Field Measurement | Measurement Frequency | Maintenance Activity | Site-Specific Requirements |
| Trash, litter, and debris removal | Buildup of material to be removed | Visually | After all storms with greater than 0.25 inches of recorded rainfall. | Picking up litter, debris | |

The long-term maintenance of all BMPs will be the responsibility of each Homeowner.

ATTACHMENT H
CERTIFICATION SHEET

ATTACHMENT H

CERTIFICATION SHEET

This Stormwater Management Plan has been prepared under the direction of the following Registered Civil Engineer. The Registered Civil Engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

Jennifer Crain
Jennifer Crain RCE No. 67821

3-5-07
Date

